To: Kevin.Strohmeier@ky.gov[Kevin.Strohmeier@ky.gov]
Cc: Bruce.Scott@ky.gov[Bruce.Scott@ky.gov]; Keatley, Aaron (EEC)[Aaron.Keatley@ky.gov]; Whisman, Jason (EEC)[jason.whisman@ky.gov]; Goodmann, Peter (EEC)[Peter.Goodmann@ky.gov]; Gabbard, Tom (EEC)[Tom.Gabbard@ky.gov]; Gardenhire, Ricki (PPC)[Ricki.Gardenhire@ky.gov]; robert.francis@ky.gov[robert.francis@ky.gov]; david.leo@ky.gov[david.leo@ky.gov]; Goss, Michael (EEC)[Michael.Goss@ky.gov]; Roney, Julie (EEC)[Julie.Roney@ky.gov]; Smith, Art[Smith.Art@epa.gov]; Roth, Charlie (EEC)[Charlie.Roth@ky.gov]; Doyle, Casey (EEC)[Casey.Doyle@ky.gov]; Giles, Todd (EEC)[Todd.Giles@ky.gov]; Jones, Mark (EEC)[Mark.Jones@ky.gov]; Maze, Rodney (EEC)[Rodney.Maze@ky.gov]; Francis, Kevin (EEC)[Kevin.Francis@ky.gov]; Tichenor, Larry (EEC)[Larry.Tichenor@ky.gov]; Cann, Mac (EEC)[mac.cann@ky.gov]
From: Brown, Dick (PPC)
Sent: Sat 1/18/2014 4:20:01 PM
Subject: Re: Freedom Industries release situation report 011614

Thanks Kevin

Sent from my iPhone

On Jan 18, 2014, at 11:16 AM, "Strohmeier, Kevin (EEC)" <kevin.strohmeier@ky.gov> wrote:

> The leading edge of the contaminant plume reached the Zorn Ave intake in Louisville yesterday morning at 05:30. It reached a peak of around 3 ppb (preliminary and internal use result only) around 18:00 and started decreasing. Based on previous results and graphical modeling, the plume was expected to persist approximately 12 hours and be past that intake around 17:30. In actuality, it persisted around 24 hours and was last detected around 04:30 this morning.
>
> The expectation is that the plume will reach Henderson, the next surface water intake, around 00:30 Monday morning. As of right now, there are apparently no plans from any of the downstream utilities to attempt to track the plume from fixed locations as Louisville and northern KY utilities were doing.
>
> The lab is currently only able to run the semi-volatile method with VOC samples accumulating. A further complicating factor is that we learned today that MCHM has a half-life of ten days, presumably when it is mixed with water. This is supported by anecdotal evidence that samples are degrading even under refrigeration. There is no indication that this applies to standards mixed in solvent but it is a potential problem.
>
> ERT responders were not successful in getting out on the water yesterday due to

the bad weather around Louisville. We are planning to sample two locations in the pool above the McAlpine lock and dam in Louisville and two locations in the pool above the Cannelton lock and dam. As with all of ERT's sampling efforts, these locations will collect water above, within and behind the plume. DOW FOB inspectors collected raw and finished water samples from Louisville Water Company and Henderson yesterday and will repeat these locations today.

The concentrations in the river are approaching the limits of detection and may be below what can be reported once all QA/QC procedures have been completed. They are three orders of magnitude less than what the CDC initially reported as being safe for the population in general. They are below what the CDC reported in a private communication to Bruce Scott as being acceptable detection limits to consider water safe for all consumers (5 to 50 ppb).

The centralized incident command in Cincinnati at ORSANCO is being dissolved as EPA Region 4 and ORSANCO are pulling out because contaminant levels are below levels that are of concern to them.

Kevin L. Strohmeier

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From: Strohmeier, Kevin (EEC)
Sent: Thursday, January 16, 2014 10:11 PM
To: Scott, R. Bruce (EEC); Keatley, Aaron (EEC); Whisman, Jason (EEC); Goodmann, Peter (EEC); Gabbard, Tom (EEC); Brown, Dick (PPC); Gardenhire, Ricki (PPC); Francis, Robert

(EEC); Leo, David (EEC); Goss, Michael (EEC); Roney, Julie (EEC); 'Smith, Art'
Cc: Roth, Charlie (EEC); Doyle, Casey (EEC); Giles, Todd (EEC); Jones, Mark (EEC); Maze, Rodney (EEC); Francis, Kevin (EEC)
Subject: RE: Freedom Industries release situation report 011614

The leading edge of the contaminant plume of MCHM reached Carrollton approximately 07:00 this morning according to preliminary sample results that I believe were collected by Louisville Water Company. Based on modeling and calculations completed by LWC and ORSANCO, the leading edge is expected to reach Louisville's Zorn Ave facility between 04:00 and 07:00 in the morning. At the current velocities, it should reach the next surface water intake at Henderson around Monday morning.

Hard data is difficult to come by because the water companies have not completed QA/QC procedures on their samples and are very reluctant to release it for fear that it will become public. So far, all figures that have been distributed today are still for official use only and should be kept internal. Hopefully, LWC will be releasing preliminary results to us in the near future. Based on what we have, we have seen concentrations in the Ohio drop from the highest measurements in Huntington of approximately 38 ppb at River Mile 304 to approximately 21 ppb near Cincinnati RM 463; Louisville is expected to be lower still. Also, the persistence of the plume has decreased from 40 hours at Huntington to around 20 hours at Cincinnati. ORSANCO has been instrumental in getting us these results. Until Louisville gives us the next data and we can get hard results from the water plants and our lab, this is going to be a data-poor summary.

We have recently gotten good news from Michael that the first round of samples are extracted and concentrated and will be run overnight. We certainly appreciate the hard work his group has put forth.

ERT responders and DOW inspectors were out again collecting samples from the river and from affected water treatment plants. Ashland, northern KY and Louisville Divisions completed most of their sampling goals today with some complications experienced because of the midday snow showers. Sampling will cease in Ashland and northern KY and the Louisville Division will shift its efforts downstream to Brandenburg and Cloverport approximate locations. As we get more preliminary results, we'll make our decisions about sampling frequency and location.

US EPA and USGS will conduct a cooperative sampling effort to define the contaminant in the water column as the peak concentration passes by the Zorn Ave WTP location in the morning. EPA will conduct the analysis of these samples at their Edison, NJ lab so that our lab isn't overtaxed with extra samples.

This has been a challenging incident for public relations, developing analytical procedures, and sample collection. The field staff have especially been taxed dealing with difficult weather, so a special thanks from me to ERT folks and Tom's inspectors and staff.

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From: Strohmeier, Kevin (EEC)
Sent: Wednesday, January 15, 2014 9:53 PM
To: Scott, R. Bruce (EEC); Keatley, Aaron (EEC); Whisman, Jason (EEC); Goodmann, Peter (EEC); Gabbard, Tom (EEC); Brown, Dick (PPC); Gardenhire, Ricki (PPC); Francis, Robert (EEC); Leo, David (EEC); Goss, Michael (EEC); Roney, Julie (EEC); 'Smith, Art'
Cc: Roth, Charlie (EEC); Doyle, Casey (EEC); Giles, Todd (EEC); Jones, Mark (EEC); Maze, Rodney (EEC); Francis, Kevin (EEC)
Subject: Freedom Industries release situation report 011514

The leading edge of the 4-methylcyclohexane methanol (MCHM) reached northern Kentucky and greater Cincinnati this morning. Both systems have raw water intakes on the Ohio River and both systems have shut these intakes down while the highest concentrations pass through, which is expected to take

approximately 24 hours. The next water system to use raw Ohio River water is Louisville and they do not have plans to close the two intakes, but will treat the source with activated carbon; this decision is likely driven by Louisville having almost no storage capacity.

At the spill site, West Virginia and US EPA OSCs are providing oversight for investigation and remediation. There is still a good chance that there is a substantial amount of MCHM in the soil and trapped under the concrete base of the storage tank. Interceptors have been dug and booms are deployed along the river bank, but there is still a plausible threat of additional releases driven my rain or leaching from the river bank. Such a release would potentially have an additional impact downstream, although clearly not as extensive as the initial one.

Analytical support – Environmental Services Branch started the day with no information on the analytical method and no standards advancing to having both by the end of the day. ORSANCO and US EPA assisted in providing standards for the MCHM and clarifying analytical parameters. Michael's staff is working into the evening to make sure the method is working and will hopefully begin analysis on samples first thing in the morning.

This afternoon it has been confirmed that there have been at least three different analytical methods and/or calibration standards used for samples collected during this incident. While no method is wrong, per se, there are enough differences that quantitative comparisons are not supportable. KDEP's samples will be the first along the length of the plume that will present an accurate picture.

Field sampling – The Ohio River was divided into three sections corresponding to the Louisville, northern KY and Ashland areas. Surface water samples and water quality parameters were collected at Louisville, Westport and Carrollton in the Louisville section and at Trinity, Vanceburg, South Shore and Catlettsburg in the Ashland section. Samples were not collected in the northern KY section because accessible launching ramps could not be found. ERT would like to acknowledge the assistance of the US Coast Guard Ohio Valley Sector in providing boat transportation for surface water samples.

Sampling will be repeated tomorrow at the same locations. The front of the

plume is expected to reach Louisville between midnight and 06:00 Friday morning, so sampling will likely be extended to approximately Brandenburg downstream from Louisville as the plume advances.

Water Treatment Plant sampling – Samples were collected from the raw water intakes and of finished product from the WTPs with surface water intakes on the Ohio River, which included Louisville (two locations), northern KY (two locations), Maysville, Russell, and Ashland. As far as we can tell, these would be the first samples taken of finished water to confirm the effectiveness of treatment. However, as responders and operators are discovering, the odor threshold appears to be nearly as low as the detection limit of analytical methods and odor would have served as a good indicator of treatment effectiveness.

Incident Command – KDEP has joined US EPA and ORSANCO in Cincinnati to provide a single point of data gathering and dissemination as the HCHM plume moves through Kentucky's portion of the Ohio River.

Thanks,

Kevin

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